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**CALFED
BAY-DELTA
PROGRAM**

July 15, 1997

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To: Water Quality Technical Group Participants

This letter is to inform you of current developments and future events in the CALFED water quality program component.

WATER QUALITY TECHNICAL GROUP MEETING

The time and location of the next scheduled meeting of the Water Quality Technical Group is as follows.

**August 6, 1997
9:30 AM - 3:30 PM
Energy Commission Building
Hearing Room A
901 P Street
Sacramento**

The meeting agenda is **Attachment A** to this document.

WATER QUALITY COMPONENT REPORT

The Water Quality Component Report will be completed this month, and we plan to distribute it to you as soon as possible after its completion, tentatively about July 23, 1997. The Component report documents the work of the water quality program up to the point of preparation of the Programmatic EIR/EIS. Parameters of Concern, sources of Parameters of Concern, loadings from these sources, problem areas, existing programs to address water quality, and programmatic actions will be discussed in the report. Those who wish to receive a copy should contact me by fax at (916) 653-5699. To facilitate this request, **Attachment B** is a Fax form that can be used for this purpose. Copies of the report will also be available at the meeting.

Your comments on the Component Report will be taken into account in the preparation of the Water Quality Technical Report.

COMPREHENSIVE MONITORING, ASSESSMENT, AND RESEARCH PLAN

CALFED management has decided that a comprehensive monitoring, assessment and research plan is necessary to enable the adaptive management process to function as the CALFED program moves into implementation phases. The water quality program has the responsibility of preparing a draft plan for review and subsequent management approval. **Attachment C** is a draft document that suggests an overall framework within which the CMARP should operate. This draft suggests the purpose, basic principles, organization, and the potential shape of other aspects of the plan. We would appreciate your review of this document and your ideas on how the

CALFED Agencies

California

- The Resources Agency
- Department of Fish and Game
- Department of Water Resources
- California Environmental Protection Agency
- State Water Resources Control Board

Federal

- Environmental Protection Agency
- Department of the Interior
- Fish and Wildlife Service
- Bureau of Reclamation
- Department of Commerce
- National Marine Fisheries Service

CMARP activity should be organized and conducted. Because our agenda for the August 6 meeting is busy, we may not have the opportunity to provide much open discussion. However, if you would review the documents and forward preliminary comments to us, we will summarize the comments for the meeting and be prepared for discussion of some of the most important issues.

WATER QUALITY TECHNICAL APPENDIX TO PROGRAMMATIC EIR/EIS

Work on alternative impact assessment is proceeding at a rapid pace. Resource teams, including water quality, fish & wildlife, economics, levee integrity, storage and conveyance, and others are working on a series of twenty-two technical reports that will form the basis of the CALFED Programmatic Environmental Impact Report/Statement. Each technical report will contain a description of the affected environment, a description of the no-action alternative, and an analysis of impacts of the alternatives.

A public workshop is planned for September or October of this year to discuss the approach, process and results of alternative impact analysis. While external review of the information contained in these technical reports is not planned until the public workshop, much of the information contained in the Water Quality Affected Environment section of the report can also be found in the Water Quality Component Report described above. It is my plan to make the Water Quality Technical Report and all other relevant documents available to you without delay as soon as distribution is approved by management.

FUNDING FOR ENVIRONMENTAL RESTORATION ACTIVITIES

As many of you may recall, in December 1996 members of the CALFED Water Quality Technical Group provided CALFED with a list of potential projects aimed at improving water quality. The project concepts addressed a wide variety of issues including agricultural drainage, mine drainage, watershed coordination, wastewater and industrial discharges, and water treatment. One of the primary uses of this information was to enable us to prepare the Request For Proposals so the full range of appropriate water quality projects could be encompassed.

By this time, all participants of the Water Quality Technical Group should have received copies of the RFP. If you have not received a copy, please let me know immediately and you will be sent one.

Approximately \$60 million of State funding and potentially \$143 million of Federal funding is available this fiscal year, to be dispensed through two funding cycles. The funds are derived from the Category III funds under Proposition 204, and are anticipated through a Federal appropriation. The funds are directed at environmental restoration activities. Accordingly, water quality projects to be proposed must relate to ecosystem restoration. July 28, 1997 is the due date for receipt of project proposals.

Water Quality Program staff have recommended formation of a water quality project review team that will review water quality proposals and make recommendations for funding priorities; also, we are recommending water quality staff participation on the Integration Team that will be

recommending overall priorities for project funding. I intend to keep you informed as the project review and approval process is developed.

PARAMETER ASSESSMENT TEAM

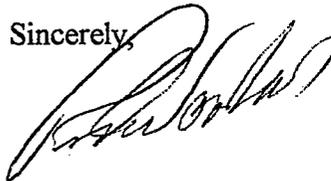
During April, the Parameter Assessment Team, a sub-team of the Water Quality Technical Group, met to assist in refinement of ecosystem and urban water quality targets. Their recommendations can be found in **Attachment D**. This information will be used in the development of the Water Quality Technical Group Report and in the Programmatic Environmental Impact Analysis (as appropriate).

WATER QUALITY IMPLEMENTATION PLAN

Looking beyond completion of the Programmatic EIR/EIS, we intend to prepare an implementation plan for the CALFED water quality common program. This will be a critically important feature of the water quality program, as it will not only provide you with substantial opportunity to assist in developing detailed plans; but also, when completed, it will provide assurance of CALFED intentions. The implementation plan will help to address issues such as determining under what conditions and to what extent certain metals become bioavailable and, therefore, should receive priority for corrective actions. At the August 6 meeting, we will be reconstituting the Parameter Assessment Team and requesting volunteers among the Water Quality Technical Group membership to participate in developing the implementation plan.

We look forward to seeing at the WQTG meeting on August 6.

Sincerely,



Rick Woodard
Assistant Director

Attachment A

AGENDA

Meeting of the CALFED Bay-Delta Program
Water Quality Technical Group

August 6, 1997

9:30 AM - 3:30 PM

Energy Commission Building

Hearing Room A

901 P Street

Sacramento

- 9:30 - 9:45 Introductions
- 9:45 - 10:30 Water Quality Component Report
- 10:30 - 10:45 Break
- 10:45 - 11:00 California Toxics Rule - Catherine Kuhlman, USEPA
- 11:00 - 11:30 Delta Water Quality Conditions With Respect to Drinking Water Supply
Phil Wendt, DWR
- 11:30 - 12:00 Grasslands Bypass Project and San Joaquin Valley Drainage Implementation
Program Issues - Manucher Alemi, DWR
- 12:00 - 1:00 Lunch (on your own)
- 1:00 - 1:15 Programmatic EIR/EIS Status Report
- 1:15 - 1:30 Category III Early Implementation Funding Status
- 1:30 - 1:45 Comprehensive Monitoring, Assessment, and Research Program
- 1:45 - 2:00 Water Quality Implementation Plan

FAX REQUEST

To: Rick Woodard
Assistant Director
CALFED Bay-Delta Program
1416 9th Street, Room 1148
Sacramento, CA 95814

FAX: (916) 653-5699

From: _____
Name

Title/Organization

Mailing Address

City State Zip

FAX: _____ **Phone:** _____

E-mail: _____

Please send a copy of the Water Quality Technical Report to the above address.

DRAFT
Framework for the
CALFED Bay-Delta Program Comprehensive
Monitoring, Assessment, and Research Plan

July 14, 1997

Purpose

CALFED actions to restore ecological health, secure the integrity of Delta islands, and provide good water quality for all beneficial uses are based on scientific determination. There is a need to undertake the following activities in order to enable adaptive management:

- establish the existence and quantify the severity of problems identified in Phase I as affecting the Bay-Delta estuary.
- establish baseline conditions against which the effects of CALFED actions will be assessed.
- evaluate the results of pilot-level implementations of CALFED actions.
- evaluate the progress of full scale implementations of CALFED actions.
- comprehensively assess the overall effectiveness of CALFED actions.
- recommend changes as needed to be cause CALFED actions to be most efficient and effective.

These requirements will be met only through implementation of a comprehensive program of monitoring, assessment and research. The following describes the CALFED Bay-Delta Program Comprehensive Monitoring, Assessment, and Research Plan (CMARP) a program that would meet the above requirements.

Principles

CALFED, with the assistance of participating agencies and stakeholders, will develop a robust management structure intended to assure scientific products of value. The following principles will be applied:

- The CMARP will be implemented primarily through the efforts of others. Entities receiving resources from CALFED will be accountable for the quality, quantity, and timeliness of products as a necessary requirement for continued program participation.
- The emphasis of the CMARP is not on data collection, but on data evaluation and use. Evaluative reports, rather than data reports, will be published. Each scientific report published by or for CALFED will have a section evaluating the assessment system and making recommendations for improving the usefulness of the information and achieving greater economy in the assessment activity.

- Only the assessments required in direct support of the CALFED program will be included within CMARP. Conformance of CMARP elements with CALFED objectives will be assessed in a detailed annual report, with a zero-base framework.
- The CMARP will be fully coordinated with similar assessment activities of other local, regional, state, and federal agencies, particularly the Interagency Ecological Program and implementation of the Central Valley Project Improvement Act. To the maximum possible extent, duplication of effort will be avoided.
- The CMARP will be directed to encouraging standardization of sampling equipment, analytical methodology, reporting limits, quality assurance/quality control, and electronic data formats to enable sharing of data among agencies.

Organization

Implementation of the CMARP will be under the overall direction of a program manager who is a CALFED staff member. Though the program manager will have final decision making authority concerning the content of the program, much of the technical work will be performed through volunteer panels of experts representing the various specialties connected with the CALFED program. It will be the program manager's responsibility to maintain the program budget, to maintain fiscal control over the program, and to assure the accountability of all program participants.

The CMARP will be implemented through others, under the overall direction and control of the program manager. CALFED agencies will be called upon to implement portions of the program. Other entities, such as the San Francisco Estuary Project, and local agencies, may also be provided with the opportunity to participate in program implementation. Private citizen volunteers and citizen groups may also participate.

Binding these efforts together will be a comprehensive quality assurance/quality control program that defines the data quality that must be attained for participation in CMARP to be possible.

Annual Monitoring, Evaluation and Research Plan

Each year, the program manager will publish a plan for the monitoring, evaluation and research to be conducted in the coming year. Formulation of this plan will be undertaken with the assistance of CALFED agency staff, under the overall direction of the program manager. This plan, when approved by CALFED management, will guide the conduct of the CMARP, and will serve as the basis for Requests For Proposals that will be prepared to implement the provisions of the plan.

Monitoring and Evaluation Plan

All CALFED activities to correct the problems of the Bay-Delta estuary are subject to assessment through CMARP. Any proposal for performance of CALFED actions will be routed to the CMARP program manager for review. The CMARP manager will work with the project

proponent to devise a specific plan to establish baseline conditions connected with the planned project, to evaluate the progress of the project, and to evaluate the project's success. The monitoring and evaluation plan will include a quality assurance/quality control project plan that establishes data quality objectives and a plan for attaining these objectives. When approved by the CMARP program manager, the monitoring and evaluation plan will become a required part of all project proposals.

Levees and Channels Component

The types of monitoring, assessment and research activities that will be required for the levee and channels actions include, but are not limited to:

- seismic stability studies
- engineering evaluations of levee construction materials
- experiments to control and reverse island subsidence

Ecosystem Restoration Component

The types of monitoring, assessment and research activities that will be required for the ecosystem restoration actions include, but are not limited to:

- identification of rare and endangered species
- assessments of the recovery of habitats and species dependent on habitats
- research into critical life stages and population dynamics of species within the CALFED Solution Area.
- identification and effects of exotic species introductions to the Delta estuary
- growth and reproduction abnormalities in Delta species, and their causes

Water Quality Component

The types of monitoring, assessment and research activities that will be required for water quality actions include, but are not limited to:

- comprehensive water quality monitoring and assessment to assess water quality conditions and evaluate effects of CALFED actions
- research into treating agricultural drainage
- investigation of potential measures to prevent or reduce harmful agents in storm water runoff.
- research into means of controlling and reducing acid mine drainage
- research into means of reducing harmful materials in agricultural drainage.
- evaluating toxicity and its sources in the Delta and its tributaries.
- assessment of soils and sediments for the presence of salts and toxicants associated with Levee and Channels actions.

Water Use Efficiency Component

The types of monitoring, assessment and research activities that will be required for water use efficiency actions include, but are not limited to:

- research into real time monitoring of agricultural irrigation practices and other potential means of increasing agricultural use efficiency.
- research into means of improving urban water use efficiency

Storage and Conveyance Component

The types of monitoring, assessment and research activities that will be required for storage and conveyance options include, but are not limited to:

- development of mathematical modeling tools

Implementation of the CMARP

The CMARP will be implemented beginning with approval of Category III projects for which funding is currently available, and extending through Phase III, the Implementation Phase of the CALFED Program.

Attachment D

CALFED Water Quality Technical Group - Parameter Assessment Team Recommendations for Ecosystem and Urban Water Quality Targets

Ecosystem Water Quality Target Subcommittee

During April, Parameter Assessment Team members Jerry Bruns, Terry Barry, J.P. Cativiela and Steve Murrill met to assist in development of recommendations regarding ecosystem water quality targets. Their recommendations were as follows:

Water column

In general, CALFED should use the Basin Plan objectives (Region 2 or Region 5, as appropriate) and US EPA promulgated National Toxics Rule or soon to promulgated California Toxics Rule standards. This would provide water column reference targets for the Delta and both rivers for cadmium, copper, mercury, selenium, DDT, PCBs, Toxaphene, ammonia, dissolved oxygen and turbidity.

The Regional Board is in the process of developing a water quality objective for carbofuran. When adopted, the objective would be an appropriate target. Consensus was not reached on what target values would be appropriate for diazinon and chlorpyrifos.

Fish tissue

In general, it was recommended that NAS guidance numbers be used. This would provide tissue targets for mercury, DDT, PCBs, and Toxaphene. There is no NAS guidance criteria for selenium. The San Luis Drain Reuse Technical Advisory Committee has recommended selenium ecological risk guidelines for tissue that may be appropriate.

Sediment

Recommendations regarding sediment targets were not made. There are no Basin Plan objectives or US EPA standards. It was suggested that sediment information collected from the Great Lakes and in San Francisco Bay might be useful in screening for potential problems in the Delta. The suggestion was made that this information be evaluated and possibly used in developing criteria that would be appropriate for the Delta.

Unknown Toxicity

Narrative statements in the Basin Plans should be used. They both essentially say that toxics shall not be present in toxic amounts.

Urban Water Quality Target Subcommittee

During April, Parameter Assessment Team members Lynda Smith, K.T. Shum, and Perri Standish-Lee met to assist in development of recommendations regarding urban water quality targets. After development of their recommendations they had their targets reviewed by CUWA's Water Quality Committee. Their draft recommendations were as follows:

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Environmental Target Levels for CALFED Urban Water Quality Parameters of Concern

Parameter of Concern	Geographic Location	Water Quality Target Levels	Comments
Bromide	Delta; Water Supply Intakes	50 µg/L -- Quarterly average	Target level based on the CUWA-Expert Panel Report recommendations (Bay-Delta Drinking Water Quality Criteria, December, 1996). Expert Panel assumed future drinking water regulatory scenario for disinfection by-product (DBP) control and inactivation of <i>Giardia</i> and <i>Cryptosporidium</i> based on the proposed Stage 2 D/DBP Rule and proposed Enhanced Surface Water Treatment Rule (ESWTR). The bromide target level is constrained by the formation of bromate when using ozone to inactivate <i>Cryptosporidium</i> .
Nutrients (Nitrate)	Delta; Water Supply Intakes	<ul style="list-style-type: none"> No increase in nitrate levels Decrease in phosphorus levels is desirable. 	<p>Nutrients are a critical reservoir management issue. Nutrient levels are a determining factor governing the growth of taste-and-odor producing algae in water storage reservoirs. SWP supplies are nitrogen-limited; however, phosphorus is present in great excess. This is a problem with respect to the growth of blue-green algae, which can fix their own nitrogen.</p> <p>Note: Water quality impacts of nutrients are driven by reservoir management issues as opposed to human health effects; as a result, use of the MCL for nitrate (as N) of 10 mg/L is <u>not</u> appropriate.</p>
Pathogens	Delta; Water Supply Intakes	<p>Annual average of 1 oocyst/100L for <i>Giardia</i> and <i>Cryptosporidium</i></p> <ul style="list-style-type: none"> Drinking water intakes should be located away from sources of pathogens. 	Desirable target levels are based on likely future regulatory scenarios under the ESWTR that will base required levels of pathogen removal/inactivation treatment on pathogen density in source water. Future regulations may require additional log removal requirements for <i>Giardia</i> and removal requirements for <i>Cryptosporidium</i> . Increasing treatment for removal of pathogens makes it more difficult to control the formation of DBPs. To balance disinfection requirements for controlling pathogens with the production of DBPs, selection of a Bay-Delta alternative should not result in degraded water quality necessitating increased removal requirements for pathogens.

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Environmental Target Levels for CALFED Urban Water Quality Parameters of Concern

Parameter of Concern	Geographic Location	Water Quality Target Levels	Comments
Salinity (TDS)	Delta; Water Supply Intakes	<p>10-yr average: < 220 mg/L Monthly avg.: < 440 mg/L</p> <ul style="list-style-type: none"> Reduced peaks in TDS levels are necessary to limit salinity-related impacts on water supply demand, local resource programs, and economic impacts. 	<p>Target levels would allow compliance with the TDS objectives contained in Article 19 of the SWP Water Service Contract.</p> <p>The average TDS levels in SWP supplies over the last ten years have consistently exceeded the 220 mg/L (10-year average) SWP objective. The ten year averaging period for the 220 mg/L objective is too long to be sufficiently protective of source water quality. CUWA is currently exploring the development of appropriate alternative TDS objectives for shorter time frames (i.e., 1-year and 6-month averages) and will forward that information to CALFED when available.</p> <p>The SWP TDS objective of 440 mg/L (monthly average) is a problem for water resource management programs, especially in the months of April through September, and there is a real need to reduce peaks in TDS in SWP supplies.</p> <p>Consistent lower TDS levels are needed to minimize the following salinity-related impacts:</p> <ul style="list-style-type: none"> Increased demand for Delta water supplies when such water is used to blend with other higher salinity water sources. Adverse impacts on water recycling and groundwater replenishment programs, which depend on Delta water supplies to meet local resource program salinity objectives. Failure to develop local resource programs may result in increased demand on Delta exports. Economic impacts on industrial, residential and agricultural water users, including corrosion impacts of elevated salinity. <p>Note: Salinity is a resource management issue for urban water suppliers; as a result, use of the secondary MCL for TDS of 500 mg/L as a target level is <u>not</u> appropriate, and would allow degradation of source water quality and limit beneficial uses and recycling.</p>

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Environmental Target Levels for CALFED Urban Water Quality Parameters of Concern

Parameter of Concern	Geographic Location	Water Quality Target Levels	Comments
TOC	Delta; Water Supply Intakes	3.0 mg/L -- Quarterly average	Target level based on the CUWA Expert Panel report recommendations (Bay-Delta Drinking Water Quality Criteria, December, 1996). Expert Panel assumed future drinking water regulatory scenario for DBP control and inactivation of <i>Giardia</i> and <i>Cryptosporidium</i> based on the proposed Stage 2 D/DBP Rule and proposed ESWTR. The proposed D/DBP Rule requires increased levels of TOC removal as TOC concentrations in source waters increase. The recommended TOC target level is constrained by the formation of total trihalomethanes when using enhanced coagulation for TOC removal and free chlorine to inactivate <i>Giardia</i> .
Turbidity	Delta; Water Supply Intakes	50 NTU -- monthly median	<p>Reduced variability in turbidity is needed to improve treatment plant performance. When source water turbidity increases, water is more difficult and costly to treat. Also, increased turbidity reduces protection from pathogens because turbidity interferes with disinfection.</p> <p>Note: The turbidity level of 0.5 NTU is a treatment technology requirement for treated drinking water supplies, and use of this value is not necessary for raw water supplies.</p>